NFRC 100-2001
Changes in Determining Fenestration Product U-factor

CEC Hearings

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Why The Change?

To maintain the technical credibility of NFRC standards

- To keep up with current technology (improvements in modeling, heat transfer calculations)
- For “harmonization” (international standards; standard sizes)
- To reduce marketplace confusion (two sizes/ratings on the label)
- To maintain the four-year cycle of reviewing and publishing NFRC standards

Summary of Changes

Changing from NFRC 100-1997 to NFRC 100-2001

- Size Changes
- Modeling of dividers
- Rating of Skylights
- Application of ISO 15099

Size Changes

- Only one size in NFRC 100-2001 (rather than a residential and nonresidential size) – see handout.

Type	NFRC 100-1997(res)	NFRC 100-2001
V. Slider	914 x 1524 (36 x 60)	1200 x 1500 (47 x 59)
Casement	610 x 1219 (24 x 48)	600 x 1500 (24 x 59)
Fixed	1219 x 1219 (48 x 48)	1200 x 1500 (47 x 59)
Patio Doors	1829 x 2083 (72 x 82)	2000 x 2000 (79 x 79)
Skylight	1219 x 1219 (48 x 48)	1200 x 1200 (47 x 47)
Entry Door	965 x 2083 (38 x 82)	1000 x 2000 (39 x 79)

Modeling Changes

NFRC 100-1997

Dividers modeled as glazing layers and imported in WINDOW

NFRC 100-2001

Dividers modeled in FRAME or THERM and imported as frame sections into WINDOW.

Skylights rated on a 20 degree slope (rather than vertically installed)

ISO 15099

More accurate modeling of fenestration system components and more accurate calculations for determining the heat transfer effects of:

- Radiation
- Convective heat transfer
- Film Coefficients

Effects of ISO 15099 (on NFRC 100-2001)

- Height dependent indoor surface heat transfer coefficients (c-o-g)
- Aspect ratio effects (c-o-g)
- Jambs and vertical mullions modeled as tall vertical sections (rather than horizontal frame members)
- Frame cavities and frame shapes accounted for more accurately

Effects of change to NFRC 100-2001 from NFRC 100-97(res size)

U-factor (100-97)	U-factor (2001)	Window Type
0.48	0.44	ALTB Casement
0.40	0.37	ALTB fixed
0.61	0.52	AL Slider
0.37	0.35	A/C wd casement
0.35	0.33	A/C wd fixed
0.31	0.31	Vinyl Casement
0.31	0.31	Vinyl fixed
0.54	0.63	ALTB Skylight
0.40	0.50	A/C wd skylight
0.59	0.57	AL Curtainwall

Implementation
(transition to 2001 ratings and new label)

Mfrs. may use current (1997) ratings and labels (two size ratings) until they expire.

Mfrs. may switch to one size label without recertifying, but must use 1997 RES rating and must indicate (on label) the rating is based on 1997 procedures.

Windows can be submitted for rating to NFRC 100-2001 on 1/1/03; however, ratings (CAR) will not be issued until April 1, 2003.

April 1, 2004 labs will only follow 2001 ratings and the new label will only incorporate new (2001) ratings.

Thank You

For the latest information, check out our website:

www.nfrc.org

Or call Silver Spring office:

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